

## INTERNATIONAL SEARCH REPORT

Intern: PCT/A  
Application No: J3/03142A. CLASSIFICATION OF SUBJECT MATTER  
IPC 7 A47L5/28 A47L9/02 A47L9/24

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 A47L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 323 510 A (COLLINS MICHAEL D ET AL) 28 June 1994 (1994-06-28)  column 2, line 4-38 column 3, line 17 - line 30; figures 1,6-10	1,2, 15-20, 24-27, 29,36
A	US 4 397 060 A (JINKINS DANNY R ET AL) 9 August 1983 (1983-08-09) column 3, line 62 -column 6, line 6; figures 1A,1B,2,4,5	1-34,36

☐ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

## \* Special categories of cited documents:

\*A\* document defining the general state of the art which is not considered to be of particular relevance

\*E\* earlier document but published on or after the international filing date

\*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

\*O\* document referring to an oral disclosure, use, exhibition or other means

\*P\* document published prior to the international filing date but later than the priority date claimed

\*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

\*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

\*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

\*&amp;\* document member of the same patent family

Date of the actual completion of the international search

24 October 2003

Date of mailing of the international search report

04/11/2003

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2  
NL - 2280 HV Rijswijk  
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,  
Fax: (+31-70) 340-3016

Authorized officer

Lodato, A

**Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)**

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
  
2. ☒ Claims Nos.: 35  
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:  
see FURTHER INFORMATION sheet PCT/ISA/210
  
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

**Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)**

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
  
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
  
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
  
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

**Remark on Protest**

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

# INTERNATIONAL SEARCH REPORT

International Application No. PCT/GB 03 03142

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box I.2

Claims Nos.: 35

Present claim 35 lacks clarity (Article 6 PCT). An attempt is made to define the subject-matter by reference to the drawings. All the claims should specify clearly all of the essential features needed to define the invention. Consequently, the search has been carried out for those part of the claims which appear to be clear, supported and disclosed.

The applicant's attention is drawn to the fact that claims, or parts of claims, relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure.

# INTERNATIONAL SEARCH REPORT

Information on patent family members

Internati

Application No

IT/GB 03/03142

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 5323510	A	28-06-1994	CA 2166802 C	27-02-2001
			DE 69425575 D1	21-09-2000
			DE 69425575 T2	26-04-2001
			EP 0708613 A1	01-05-1996
			JP 9503398 T	08-04-1997
			WO 9501748 A1	19-01-1995
			US 5584095 A	17-12-1996
US 4397060	A	09-08-1983	AU 547479 B2	24-10-1985
			AU 8190382 A	30-09-1982
			CA 1199456 A1	21-01-1986
			EP 0061826 A1	06-10-1982

## PATENT COOPERATION TREATY

- 8 NOV 2004 PCT

**NOTIFICATION OF THE RECORDING  
OF A CHANGE**

(PCT Rule 92bis.1 and  
Administrative Instructions, Section 422)

From the INTERNATIONAL BUREAU

To:

HUCKER, Nerys  
Intellectual Property Department  
Dyson Limited  
Tetbury Hill  
Malmesbury, Wiltshire SN16 0RP  
United Kingdom

Date of mailing (day/month/year)

02 November 2004 (02.11.2004)

Applicant's or agent's file reference

WOP0270C

International application No.

PCT/GB2003/003142

**IMPORTANT NOTIFICATION**

International filing date (day/month/year)

18 July 2003 (18.07.2003)

1. The following indications appeared on record concerning:

☒ the applicant ☐ the inventor ☐ the agent ☐ the common representative

Name and Address

DYSON LTD  
Tetbury Hill  
Malmesbury, Wiltshire SN16 0RP  
United Kingdom

State of Nationality

GB

State of Residence

GB

Telephone No.

Facsimile No.

Teleprinter No.

2. The International Bureau hereby notifies the applicant that the following change has been recorded concerning:

☐ the person ☒ the name ☐ the address ☐ the nationality ☐ the residence

Name and Address

DYSON TECHNOLOGY LIMITED  
Tetbury Hill  
Malmesbury  
Wiltshire SN16 0RP  
United Kingdom

State of Nationality

GB

State of Residence

GB

Telephone No.

Facsimile No.

Teleprinter No.

3. Further observations, if necessary:

4. A copy of this notification has been sent to:

☒ the receiving Office ☐ the designated Offices concerned  
☐ the International Searching Authority ☒ the elected Offices concerned  
☒ the International Preliminary Examining Authority ☐ other:

The International Bureau of WIPO  
34, chemin des Colombettes  
1211 Geneva 20, Switzerland

Facsimile No. (41-22) 338.87.40

Authorized officer

Peggy Steunenberg

Telephone No. (41-22) 338 9482

# PATENT COOPERATION TREATY

From the  
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

DUE DATE	
DATABASE	<i>JP</i>
	25 OCT 2004
ADMIN	<i>JP</i>
ATTORNEY	

PCT

To:

Hucker, Nerys  
DYSON LIMITED  
Intellectual Property Department  
Tetbury Hill, Malmesbury  
Wiltshire SN16 0RP  
GRANDE BRETAGNE

NOTIFICATION OF TRANSMITTAL OF  
THE INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT

(PCT-Rule 71.1)

Date of mailing  
(day/month/year)

22.10.2004

Applicant's or agent's file reference  
WOP0270C ✓

## IMPORTANT NOTIFICATION

International application No.  
PCT/GB 03/03142 ✓

International filing date (day/month/year)  
18.07.2003

Priority date (day/month/year)  
09.08.2002

Applicant  
DYSON LTD et al.

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.
4. **REMINDER**

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

The applicant's attention is drawn to Article 33(5), which provides that the criteria of novelty, inventive step and industrial applicability described in Article 33(2) to (4) merely serve the purposes of international preliminary examination and that "any Contracting State may apply additional or different criteria for the purposes of deciding whether, in that State, the claimed inventions is patentable or not" (see also Article 27(5)). Such additional criteria may relate, for example, to exemptions from patentability, requirements for enabling disclosure, clarity and support for the claims.

Name and mailing address of the international preliminary examining authority:



European Patent Office  
D-80298 Munich  
Tel. +49 89 2399 - 0 Tx: 523656 epmu d  
Fax: +49 89 2399 - 4465

Authorized Officer

Abadie, N

Tel. +49 89 2399-2746



# PATENT COOPERATION TREATY

# PCT

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference <b>WOP0270C</b>	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/PEA/416)	
International application No. <b>PCT/GB 03/03142</b>	International filing date ( <i>day/month/year</i> ) <b>18.07.2003</b>	Priority date ( <i>day/month/year</i> ) <b>09.08.2002</b>
International Patent Classification (IPC) or both national classification and IPC <b>A47L5/28</b>		
Applicant <b>DYSON LTD et al.</b>		

1.	This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2.	This REPORT consists of a total of 6 sheets, including this cover sheet.  <input checked="" type="checkbox"/> This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).  These annexes consist of a total of 2 sheets.
3.	This report contains indications relating to the following items: <ul style="list-style-type: none"> <li>I <input checked="" type="checkbox"/> Basis of the opinion</li> <li>II <input type="checkbox"/> Priority</li> <li>III <input checked="" type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</li> <li>IV <input type="checkbox"/> Lack of unity of invention</li> <li>V <input checked="" type="checkbox"/> Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</li> <li>VI <input type="checkbox"/> Certain documents cited</li> <li>VII <input type="checkbox"/> Certain defects in the international application</li> <li>VIII <input type="checkbox"/> Certain observations on the international application</li> </ul>

Date of submission of the demand  <b>05.03.2004</b>	Date of completion of this report  <b>22.10.2004</b>
Name and mailing address of the international preliminary examining authority:  <div style="display: flex; align-items: center;"> <div>             European Patent Office              D-80298 Munich              Tel. +49 89 2399 - 0 Tx: 523656 epmu d              Fax: +49 89 2399 - 4465           </div> </div>	Authorized Officer  <b>Lodato, A</b>  Telephone No. +49 89 2399-8037



**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. PCT/GB 03/03142

**I. Basis of the report**

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

**Description, Pages**

1, 2, 4-22 as originally filed  
3 received on 05.10.2004 with letter of 30.09.2004

**Claims, Numbers**

7-36 as originally filed  
1-6 received on 05.10.2004 with letter of 30.09.2004

**Drawings, Sheets**

1/13-13/13 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item:

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).  
☐ the language of publication of the international application (under Rule 48.3(b)).  
☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.  
☐ filed together with the international application in computer readable form.  
☐ furnished subsequently to this Authority in written form.  
☐ furnished subsequently to this Authority in computer readable form.  
☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.  
☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:  
☐ the claims, Nos.:  
☐ the drawings, sheets:



**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. PCT/GB 03/03142

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

*(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)*

6. Additional observations, if necessary:

**III. Non-establishment of opinion with regard to novelty, inventive step and industrial applicability**

1. The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non-obvious), or to be industrially applicable have not been examined in respect of:

☐ the entire international application,

☒ claims Nos. 35

because:

☐ the said international application, or the said claims Nos. relate to the following subject matter which does not require an international preliminary examination (specify):

☒ the description, claims or drawings (*indicate particular elements below*) or said claims Nos. 35 are so unclear that no meaningful opinion could be formed (*specify*):

**see separate sheet**

☐ the claims, or said claims Nos. are so inadequately supported by the description that no meaningful opinion could be formed.

☒ no international search report has been established for the said claims Nos. 35

2. A meaningful international preliminary examination cannot be carried out due to the failure of the nucleotide and/or amino acid sequence listing to comply with the standard provided for in Annex C of the Administrative Instructions:

☐ the written form has not been furnished or does not comply with the Standard.

☐ the computer readable form has not been furnished or does not comply with the Standard.

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Yes: Claims	1-34, 36
	No: Claims	
Inventive step (IS)	Yes: Claims	1-34, 36
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1-34, 36
	No: Claims	

2. Citations and explanations

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. PCT/GB 03/03142

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see separate sheet

**Re Item III**

**Non-establishment of opinion with regard to novelty, inventive step and industrial applicability**

Claim 35 does not meet the requirements of Article 6 PCT in that the matter for which protection is sought is not clearly defined. The claim attempts to define the subject-matter by a reference to the drawings. All the claims should specify clearly all of the essential features needed to define the invention.

Furthermore, the above-mentioned lack of clarity notwithstanding, claim 35 is considered by this Authority to be covered by the provisions of Rule 66.1(e) PCT. Consequently, no opinion will be formulated with respect to novelty, inventive step and industrial applicability of the subject-matter of this claim.

**Re Item V**

**Reasoned statement under with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Reference is made to the following document:

D1: US-A-5 323 510 (COLLINS MICHAEL D ET AL) 28 June 1994 (1994-06-28)

2. The document D1 is regarded as being the closest prior art to the subject-matter of independent claim 1 and discloses (see description column 2, lines 4-38; column 3, lines 17-30; figures 1, 6-10):  
A surface treating appliance (10) comprising a handle (24) having a longitudinal axis, a surface treating head (12), a support assembly (18) which is attached to the handle and arranged to roll with respect to the handle for allowing the appliance to be rolled along a surface, and a linkage (40) between the handle and the surface treating head, the linkage being arranged such that rotating the handle about its longitudinal axis causes the surface treating head to turn in a new direction.
3. The subject-matter of claim 1 differs from the disclosure of D1 in that:
  - i) when the handle rotates (twists) about its longitudinal axis, the support assembly also rotates (twists) around the same axis.
4. The object of the invention is to provide a surface treating appliance with a more responsive steering mechanism. This object is achieved by the technical features of independent claim 1.

5. With respect to feature i), by fixing the rotational axis of the support assembly perpendicular to the handle, so that twisting the handle about its longitudinal axis the support assembly also twists around the same axis (in the manner of a corkscrew), if the user wishes the surface-treating head to point in a new direction, he has only to twist the handle about its longitudinal axis without being necessary to push or pulled the appliance along the floor surface.
6. Document D1 discloses a surface treating appliance, wherein by twisting the handle around its longitudinal axis the surface-treating head can be turn in a new direction, but with the linkage of D1 it is necessary to push or pull the appliance along the floor surface in order to turn the surface-treating head. Therefore, the alternative provided by the technical feature i) is not indicated or suggested therein.
7. Therefore a surface treating appliance according to claim 1 is not disclosed or suggested in the available prior art.
8. **Claim 1** meets the requirements of the PCT with respect to novelty and inventive step (Article 32(2) and 33(3) PCT). **Claims 2-34 and 36** are depending from claim 1 and as such also meet the requirements of Article 32(2) and 33(3) PCT.

The invention provides a surface treating appliance comprising a handle having a longitudinal axis, a surface treating head, a support assembly which is attached to the handle and arranged to roll with respect to the handle for allowing the appliance to be rolled along a surface, and a linkage between the handle and the surface treating head, the linkage being arranged such that rotating the support assembly and the handle about the longitudinal axis causes the surface treating head to turn in a new direction.

The provision of a rolling support surface and a linkage which allows the handle to be rotated or twisted about its longitudinal axis, in the manner of a corkscrew, improves manoeuvrability and ensures a smooth transition between the forward running and turning positions. Thus, the usability of the appliance is improved.

Preferably a joint is provided between the handle and the cleaner head, which joint may be lockable in order to prevent the cleaner head from turning when the appliance is in an upright position. This feature provides stability to the appliance when it is stationary.

The main body of the appliance may be carried on the handle, as in an upright vacuum cleaner or stick vac. Alternatively, the main body may be located elsewhere and the invention may be used in the manner of a floor tool.

Advantageously, the support assembly is arranged so that the diameter of the central portion is greater than that of the end portions, so that the outer surface has a spherical or barrel shape. This greater facilitates the user in turning the appliance in a new direction. The support assembly may house one or more components of the appliance.

The term "surface treating appliance" is intended to have a broad meaning, and includes a wide range of machines having a head for travelling over a surface to clean or treat the surface in some manner. It includes, inter alia, machines which apply suction to the surface so as to draw material from it, such as vacuum cleaners (dry, wet and wet/dry), as well as machines which apply material to the surface, such as polishing/waxing machines, pressure washing machines, ground marking machines and shampooing machines. It also includes lawn mowers and other cutting machines.

Claims

1. A surface treating appliance comprising a handle having a longitudinal axis, a surface treating head, a support assembly which is attached to the handle and arranged to roll with respect to the handle for allowing the appliance to be rolled along a surface, and a linkage between the handle and the surface treating head, the linkage being arranged such that rotating the support assembly and the handle about the longitudinal axis causes the surface treating head to turn in a new direction.
2. An appliance according to claim 1 wherein the linkage is also arranged to allow the surface treating head to remain substantially in contact with the surface as the handle is rotated about its longitudinal axis.
3. An appliance according to claim 1 or 2 wherein the end portion of the linkage nearest the surface treating head comprises a pivotable connection between the linkage and the surface treating head.
4. An appliance according to any preceding claim wherein the end portion of the linkage nearest the handle comprises a pivotable connection between the linkage and the handle.
5. An appliance according to claim 4 wherein the pivotable connection to the handle is substantially aligned with the rotational axis of the support assembly.
6. An appliance according to claim 5 wherein the linkage comprises a yoke, at least one end portion of which has a pivotable connection to the handle that is substantially aligned with the rotational axis of the support assembly.